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### AN EXAMPLE OF COOPERATIVE HUNTING BY SAKER FALCONS IN HUNGARY

Cooperative or social hunting has been described for several diurnal raptors, including Sooty Falcons (*Falco color*), Eleonora's Falcons (*F. eleonora*) (Walter 1979, *Eleonora's Falcon: adaptations to prey and habitat in a social raptor*. University Chicago Press, Chicago, IL U.S.A.), and Harris' Hawks (*Parabuteo unicinctus*; Mader 1976, *Living Birds* 14:59–85; Bednarz 1995, Harris' Hawk [*Parabuteo unicinctus*]. In A. Poole and F. Gill [EDS.], *The birds of North America*, No. 146. The Birds of North America, Inc., Philadelphia, PA U.S.A.). The strategy involves a pair hunting together, with one bird flying ahead to flush or disrupt the prey and the other usually following behind to capture the prey. Some social species group or flock-hunt cooperatively (Ellis et al. 1993, *BioScience* 43:14–20). Lanner Falcons (*F. biarmicus*), Brown Falcons (*F. berigora*), and Aplomado Falcons (*F. femoralis*) have been observed hunting in cooperative pairs (Hector 1986, *Ethology* 73:247–257; Mooney 1989, *Corella* 13:18–21; Leonardi 1999, *J. Raptor Res.* 33: 123–127), but the strategy is poorly documented for other large falconids such as the Saker Falcon (*F. cherrug*). Based on our review of literature only Gorman (1998, *Buteo* 10:103–104), reported observations that suggested possible cooperative hunting by sakers.

Sakers feed mainly on small mammals, but also take a variety of birds and other animals (Cade 1982, *The falcons of the world*. Comstock/Cornell University Press, Ithaca, NY U.S.A.). In Hungary, sakers forage largely on feral pigeons (*Columba livia*) and ground squirrels (Susliks, *Spermophilus citellus*), and often nest on artificial boxes and platforms recently placed on electrical towers (Bagyura et al. 1994, Pages 391–395 in B.-U. Meyburg and R.D. Chancellor [EDS.], *Raptor conservation today*. World Working Group on Birds of Prey, Berlin, Germany; Bagyura et al. 1994, Pages 397–401 in B.-U. Meyburg and R.D. Chancellor [EDS.], *Raptor conservation today*. World Working Group on Birds of Prey, Berlin, Germany; Baumgart 2000, Pages 295–299 in R.D. Chancellor and B.-U. Meyburg [EDS.], *Raptors at risk*. World Working Group on Birds of Prey, Berlin, Germany). Regardless of prey, sakers catch most of their prey on or near the ground and are generally less aerial hunters than Peregrine Falcons (*F. peregrinus*) or Gyrfalcons (*F. rusticolus*; Cade 1982). Sakers typically hunt from an elevated perch providing a commanding view of the terrain, then launch after prey, flying rapidly close to the ground, and capture prey on the ground. Sakers will also hover briefly like a large kestrel, particularly when searching for prey that has taken cover (Clark 1999, *A field guide to the raptors of Europe, the Middle East, and North Africa*. Oxford University Press, New York, NY U.S.A.; Forsman 1999, *The raptors of Europe and the Middle East: a handbook of field identification*. T. & A.D. Poyser, London, U.K.).

On 28 May 2003 at 0900 H local time, we observed one adult male and female saker (a breeding pair that later fledged two young; I. Sándor pers. comm.) 400 m away perched together on a 40 m electrical tower with a nesting platform in Hortobágy National Park, 35 km west of Debrecen in northeastern Hungary. After 10 min of observation the larger female flew west, followed immediately by the smaller male <3 sec later. Both sakers flew rapidly <50 m above ground level toward a cornfield <1 km distant. The female, first to arrive, dove to the ground and flushed a female Ring-necked Pheasant (*Phasianus colchicus*), which quickly dropped back into the field after the male made a subsequent passing attack. Both sakers hovered and made multiple dives for <20 sec at the location where the pheasant landed, again without making apparent contact, and then landed together on the ground, at which point both falcons and prey were out of view. Less than 30 sec later the pheasant became airborne (<5 m) briefly once again and was chased to the ground out of view by one of the falcons (sex undetermined).

Approximately one min later, an adult male Marsh Harrier (*Circus aeruginosus*) flew <10 m over the area and was chased by one of the sakers. The harrier landed on a low pile of cow dung and hay about 75-m away and the saker

returned to the presumed kill site. After 5 min, we drove to the cornfield and slowly approached the area by car. About 10 m from the kill site both falcons were spotted on the ground, then flushed and flew east, vocalizing. The bird on the pheasant appeared larger (female) with the smaller falcon close by. We approached the site on foot and verified that the pheasant had been killed and was partially consumed.

Cooperative hunting by sakers in Hungary has been reported by some observers (I. Sándor, M. Dudás, and J. Bagyura pers. comm.). However, it is unclear if these observations represented true cooperative hunting in which falcon pairs act together for mutual benefits or pseudo-cooperative hunting in which individual falcons pursue the same prey item independently (Ellis et al. 1993). Sakers in Hungary have been observed pair hunting, pursuing, and capturing pigeons (*Columba* spp.) and shorebirds (*Scolopacidae*) in what suggested true cooperative hunting (Gorman 1998). Our observations appear to support Gorman's (1998) suggestion that pairs of Saker Falcons employ cooperative hunting tactics successfully, but more data are needed to determine whether cooperative hunting occurs commonly in this species.

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